

**What is claimed is:**

1. A method to improve quality of black and white images of tag-based color imaging systems in a color image path, comprising:
  - a) receiving data processed from an input image;
  - b) receiving image analysis tags associated with the pixels of said input image data;
  - c) providing said tags to each channel of said image processing module to control image processing;
  - d) performing image processing on said image data to provide a video signal output thereof;
  - e) replicating said video output signal on all output channels of said image processing module;
  - f) merging each video signal from each of said output channels based on the tags; and
  - g) outputting said merged video signal.
2. A method to improve image quality as in **claim 1** wherein the tags are determined from one or more characteristics of the image through segmentation.
3. A method to improve image quality as in **claim 1** wherein the received data processed from said input image is obtained from a memory.
4. A method to improve image quality as in **claim 1** wherein said tags are generated in an image analysis module.
5. A method to improve image quality as in **claim 4** wherein said tags describe for each pixel its classification (e.g., continuous tone, low frequency halftone, high frequency halftone, text, etc).

6. A method to improve image quality as in **claim 1** wherein said image processing includes filtering, Tonal Reproduction Curves or TRCs, and rendering based.
7. A method to improve image quality as in **claim 1** wherein different de-screen filters with various cut-off frequencies and enhancement filters are applied to the image based on pixel classification.
8. A method to improve image quality as in **claim 1** wherein said image processing comprises multiple resources to enhance image quality.
9. A method to improve image quality as in **claim 1** wherein additional channel modes are utilized in a CMYK image path for processing in 3-channel color space.
10. A method to improve image quality as in **claim 1** wherein a 4<sup>th</sup> channel provides resources for the luminance channel.
11. A method to improve image quality as in **claim 1** wherein additional channel modes are utilized in a color image path for processing in 1-channel Black and White mode.

12. A system for improving the quality of black and white images in a color image path of tag-bases color imaging systems, comprising:  
at least one processor in communication with a storage device;  
sufficient software and hardware to perform:
- a) receiving data processed from an input image;
  - b) receiving image analysis tags associated with the pixels of said input image data;
  - c) providing said tags to each channel of said image processing module to control image processing;
  - d) performing image processing on said image data to provide a video signal output thereof;
  - e) replicating said video output signal on all output channels of said image processing module;
  - f) merging each video signal from each of said output channels based on the tags; and
  - g) outputting said merged video signal on; and  
a device for rendering said merged video signal.
13. A system for improving image quality as in **claim 11** wherein the tags are determined from one or more characteristics of the image through segmentation.
14. A system for improving image quality as in **claim 11** wherein the received data processed from said input image is obtained from a memory.
15. A system for improving image quality as in **claim 11** wherein said tags are generated in an image analysis module.

16. A system for improving image quality in **claim 15** wherein said tags describe for each pixel its classification (e.g., continuous tone, low frequency halftone, high frequency halftone, text, etc).
17. A system for improving image quality in **claim 11** wherein said image processing includes filtering, Tonal Reproduction Curves or TRCs, and rendering based.
18. A system for improving image quality in **claim 11** wherein different de-screen filters with various cut-off frequencies and enhancement filters are applied to the image based on pixel classification.
19. A system for improving image quality in **claim 11** wherein said image processing comprises multiple resources to enhance image quality.
20. A system for improving image quality in **claim 11** wherein additional channel modes are utilized in a CMYK image path for processing in 3-channel color space.
21. A system for improving image quality in **claim 11** wherein a 4<sup>th</sup> channel provides resources for the luminance channel.
22. A system for improving image quality in **claim 11** wherein additional channel modes are utilized in a color image path for processing in 1-channel Black and White mode.